REMARKS

This Preliminary Amendment is submitted within three months of the filing date of the application, and accordingly should be entered under 37 C.F.R. §1.115.

The specification is revised as indicated in the attached Appendix to correct some obvious errors and to improve the clarity of the specification. It is respectfully submitted that no new matter is introduced.

In view of the foregoing, Applicant respectfully requests the Examiner to find the application in condition for allowance. However, if for any reason the Examiner believes that the application is not now in condition for allowance, the Examiner is respectfully requested to call the undersigned to resolve any issues and to expedite the disposition of the application.

Applicant hereby petitions for any extension of time that may be required to maintain the pendency of this case, and any required fee for such extension is to be charged to Deposit Account No. 05-0460.

Respectfully submitted,

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APPENDIX

Specification

Set forth below are the replacement paragraphs of the specification rewritten in the accompanying Amendment, marked up to show all changes.

Page 5, lines 17 - 24.

In an audio application, the signature appears as a short duration pattern placed at non-critical bits in the compressed audio signal. The non-critical bits can be predetermined so that the source and destination units both know *a priori* which bits in the signal are the non-critical bits with which the watermark is embedded in the signal. For example, for the MELP vocoder, the non-critical bits can include the least significant bits of the Multi-stage Vector Quantization of LPC coefficients, the Jitter Index bit, the least significant bits of the Second Gain Index, and the least significant bits of the Fourier Magnitude, as well as spare or unused bits. For LPC-10e, the non-critical bits can include the least significant bits of the reflection coefficients.

Page 9, line 17 through page 10, line 8.

A process for using the multimedia authentication watermarking system shown in Fig. 1, is illustrated in Fig. 2. The multimedia application processor 2 of source processor 1 receives a multimedia data stream, such as a voice, video or data stream from a data source (12), and processes that stream to compress or otherwise transform the data within the stream (13). The digital watermark signature generator 3 generates [a predetermined] an appropriate watermark signature that includes information concerning the capabilities of the data source (14) for use in negotiations. The combiner 4 combines the generated watermark signature with the processed data stream output from the multimedia application processor 2, and outputs a signed data stream to a transport/network processor 5 (15). One way of combining the watermark signature with the processed data stream is to logically [OR the watermark signature with] overwrite the data stream at the appropriate bit positions with the watermark signature, depending upon

the application. Those bit positions are chosen so that they have a minimal impact on the subjective quality of the multimedia data stream at the destination. The watermark can be applied on a periodic basis to facilitate the detection process and increase the probability of detection of the watermark. The transport/network processor 5 adds the appropriate network and transport layer headers to the signed data stream and outputs it as a data transmission unit, such as a data packet (16). For example, in a TCP/IP network environment, the appropriate TCP/IP headers are added to the signed data packet to route the packet to the destination. Other types of networks, such as asynchronous transfer mode (ATM) networks, add headers to route information as appropriate. For instance, in a space-based network, a packet might be routed using a Proximity-1 link layer protocol. In that case, the Proximity-1 headers are needed to route the packets to the final destination.

Page 12, lines 7 - 27.

The compressed speech frame output from logical AND circuit 34 is input to a second buffer 36. The compressed speech frame stored in buffer 36 includes a first storage area 36a that includes the compressed speech frame non-critical bits that have been set to zero 36a and the compressed speech frame critical bits 36b that make up the speech frame output from logical AND circuit 34. The speech frame stored in buffer 36 that includes the zero-value non-critical bits is applied to a logical OR circuit 37. Also applied to the logical OR circuit 37 are a set of source capability bits stored in a first area 38a of a source capabilities buffer 38. Stored in a second area 38b of buffer 38 is a set of logical [ones] <u>zeros</u> that correspond to the positions of the compressed speech frame critical bits in the speech frame. The source capability bits stored in area 38a are set according to source capability information concerning capabilities of the source radio. The capability information can include, for example, source vocoder types, source vocoder revision numbers, source ID, etc. The logical OR circuit 37 combines the source capabilities information from buffer 38 with the speech frame recorded in buffer 36. The effect of that operation is to combine the source capability information with the compressed speech frame non-critical bits. The resulting output of the logical OR circuit

is output to a watermarked speech frame buffer 39 that contains a watermarked speech frame having a set of source capability bits 39a and a set of compressed speech frame critical bits 39b. Because the source capability bits are located in the non-critical bit positions of the compressed speech frame, applying the watermark has little noticeable effect on the speech frame. The watermark speech frame 39 is then output from the source unit 30 and transmitted to a destination radio.

Page 16, line 6 through page 17, line 2.

The methods, systems and apparatuses described here can be used whenever two devices must communicate and offer varying service, accommodate different versions or provide flexible interfacing. For example, in a mobile client/server environment these techniques can be used to synchronize varying versions of the clients with the server's resources. For instance, a PDA client might use the digital watermarking techniques described here to authenticate its ability to use a particular feature, allow for conversion of data or provide upgraded services. Newer PDAs with more capable software can gain access to better services/features than can older PDAs that do not have the more capable software. The digital watermarking techniques described here also can be used with other devices, such as cellular telephones to identify the telephone's ability to receive pages or e-mails. An example of such a use with telephones is where two telephones use the same telephone number. During a negotiation process the telephones inform a base station of the services the telephones are capable of providing. One telephone might allow a particular service because that telephone is a newer model that supports newer [features,] <u>features.</u> However, another telephone might be an older telephone that is incapable of the supporting newer features. Accordingly, each telephone informs the base station of its capabilities by using a digital watermark with information concerning the telephone's capabilities included in the watermark. The base station negotiates with each telephone individually, based on that telephone's capabilities indicated in the watermark, thereby allowing each telephone to use the features it has available and to operate with the highest level of capabilities that the telephone can support.